What Is The Ideal Global Temperature (MTR)?

All this empirical data is available on my website (with links).
climatechangeandmusic.com

GSM – Grand Solar Minimum. You really should do the Research!

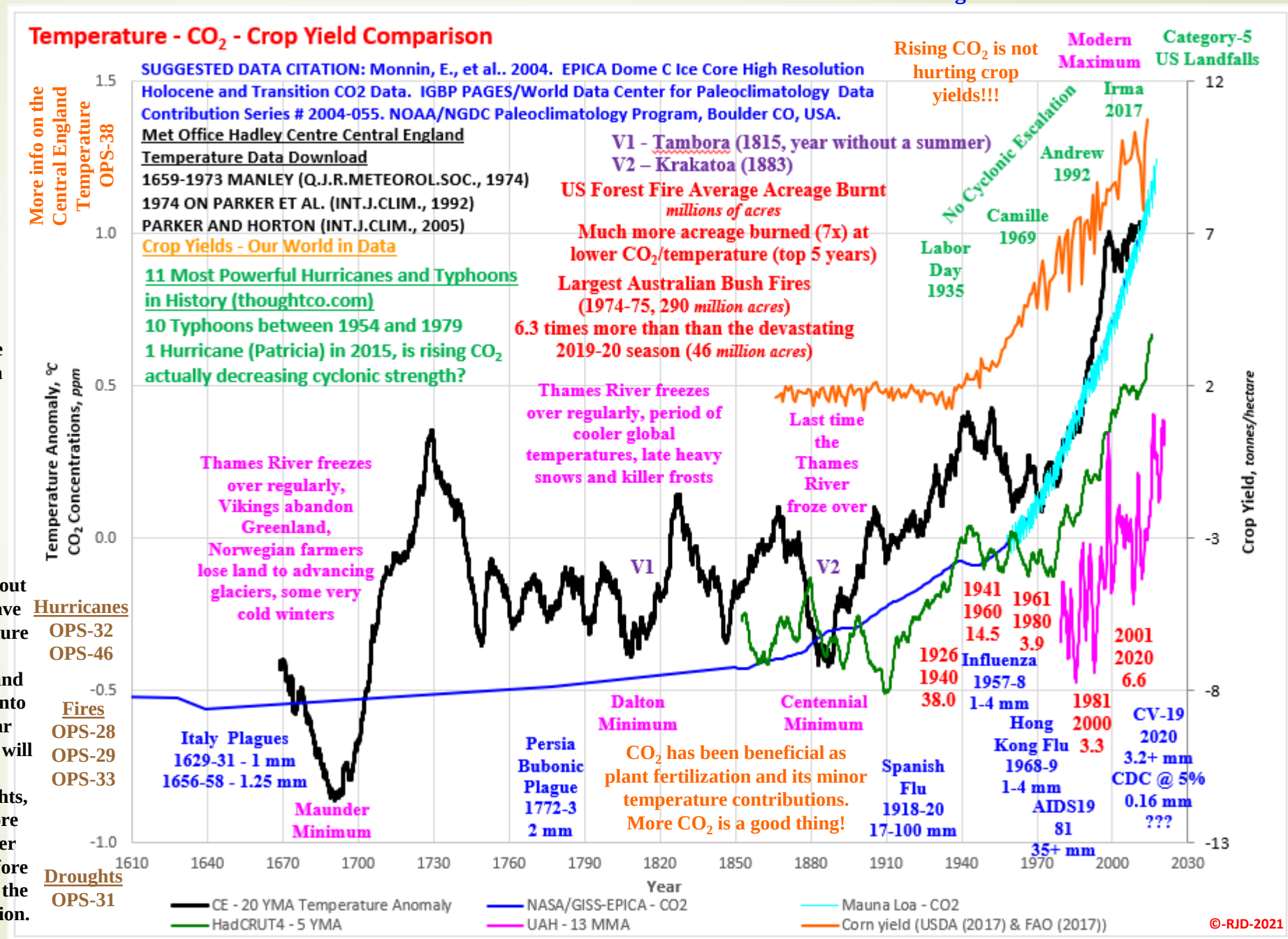
Just in general, we are living through a period of very nice temperatures. Are we in a period of ideal temperatures? Maybe, maybe not since the higher temperatures of the earlier Holocene allowed humanity to develop quickly and fruitfully without the modern technologies we currently have at our disposal. The relatively small temperature rise out of the Little Ice Age (LIA) has been beneficial and the modern prosperity we enjoy has been made possible with the advent of fossil fuels. The cheap, abundant, reliable energy source that has pulled hundreds of millions of people out of poverty over the last 70 years. Is the 1 °C rise in temperature unusual or unprecedented? No, as will be shown in the following slides. Is the rise in CO_2 due to the increased use of hydrocarbons? Primarily yes. Is the 1 °C temperature rise due to increased hydrocarbon use? Not much of it. Check out CSS-7 – CO_2 – The Feckless GreenHouse Gas and CSS-3 – CO_2 Sensitivity. On this time scale, the temperature changes are not large enough to establish what might be the ideal temperature. The depths of the LIA were a major problem for those living through it, so I would be inclined to say that the current "Hottest Years Ever" are preferable.

Ideal Temperature? MTR

Although, I should point out that the last few years have seen continuous temperature declines and massive snowfalls, flooding, etc. and we are only just moving into the Modern Grand Solar Minimum (GSM). Things will get worse.

Hurricanes, Fires, Droughts, etc. have not become more extreme or prevalent over this period and are therefore not a significant factor in the ideal temperature discussion.

The sun, (not CO_2) is the primary climate driver!



CSS-9b What Is The Ideal Global Temperature (Late Holocene)?

All this empirical data is available on my website (with links).
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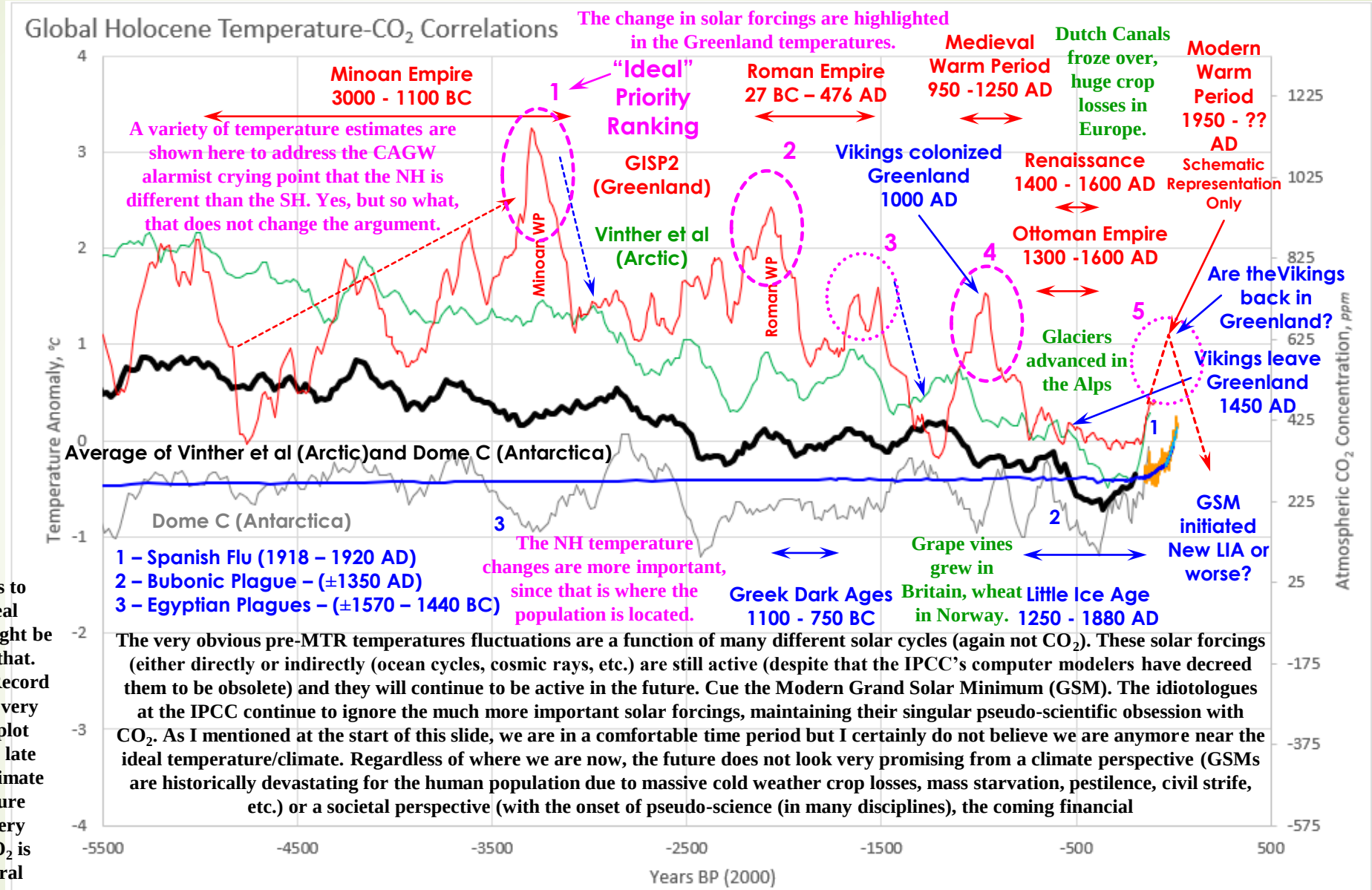
Given my life experience on this planet, I would say we have lived in a very pleasant period of time with respect to the weather. Being born (1957) and raised in Canada, I could argue that a little more "Global Warming" would be greatly appreciated (regardless the source). From a bigger societal viewpoint, my generation has lived through the sweet spot of history. The technological advances that we have seen are nothing short of amazing. The human race has flourished with the advent of safe, reliable and cheap, abundant and natural (Mother Nature's solar energy storage option) hydrocarbon energy. That is not to say that there have not been major pollution issues with every major industry (including hydrocarbon energy). Solutions to those pollution problems have been aggressively developed over the last half century plus. To the point where pollution in the hydrocarbon energy industry is in reality a minor problem. Emissions consist almost exclusively of H_2O (by far the most important GreenHouse Gas) and CO_2. Both of those molecules are absolutely essential to life on this planet, they are non-toxic and are therefore not pollutants (OPS-1 – H_2O-CO_2).

Ideal Temperature? Late Holocene

A lot of the great examples of European architecture were built in the Roman and Medieval Warm Periods, when the populations were both healthy and wealthy. Hat tip to the sun's warmth (not CO_2)!

The purpose of this CSS is to contemplate what the ideal temperature of the planet might be and we should get back to that. The Modern Temperature Record (MTR, 1850 – Present) is a very brief period of time. This plot expands the data out to the late Holocene (post Holocene Climate Optimum). The temperature changes (pre-MTR) are very clearly all natural (i.e.: CO_2 is essentially flat). The general downtrend in all the temperature profiles is due to solar forcing (primarily the Obliquity from the Milankovitch Cycles)!



The very obvious pre-MTR temperatures fluctuations are a function of many different solar cycles (again not CO_2). These solar forcings (either directly or indirectly (ocean cycles, cosmic rays, etc.) are still active (despite that the IPCC's computer modelers have decreed them to be obsolete) and they will continue to be active in the future. Cue the Modern Grand Solar Minimum (GSM). The idiotologues at the IPCC continue to ignore the much more important solar forcings, maintaining their singular pseudo-scientific obsession with CO_2. As I mentioned at the start of this slide, we are in a comfortable time period but I certainly do not believe we are anymore near the ideal temperature/climate. Regardless of where we are now, the future does not look very promising from a climate perspective (GSMs are historically devastating for the human population due to massive cold weather crop losses, mass starvation, pestilence, civil strife, etc.) or a societal perspective (with the onset of pseudo-science (in many disciplines), the coming financial apocalypse and the accelerated push towards socialism with the various UN Agendas (21 and 2030, the IPCC's "Climate Change" narrative, Social Justice initiatives, the COVID-19 economic fallout, etc.) and the WEF's "Great Reset".

GSM – Grand Solar Minimum. You really should do the Research!

CSS-9c

What Is The Ideal Global Temperature (Holocene - China)?

All this empirical data is available on my website (with links).
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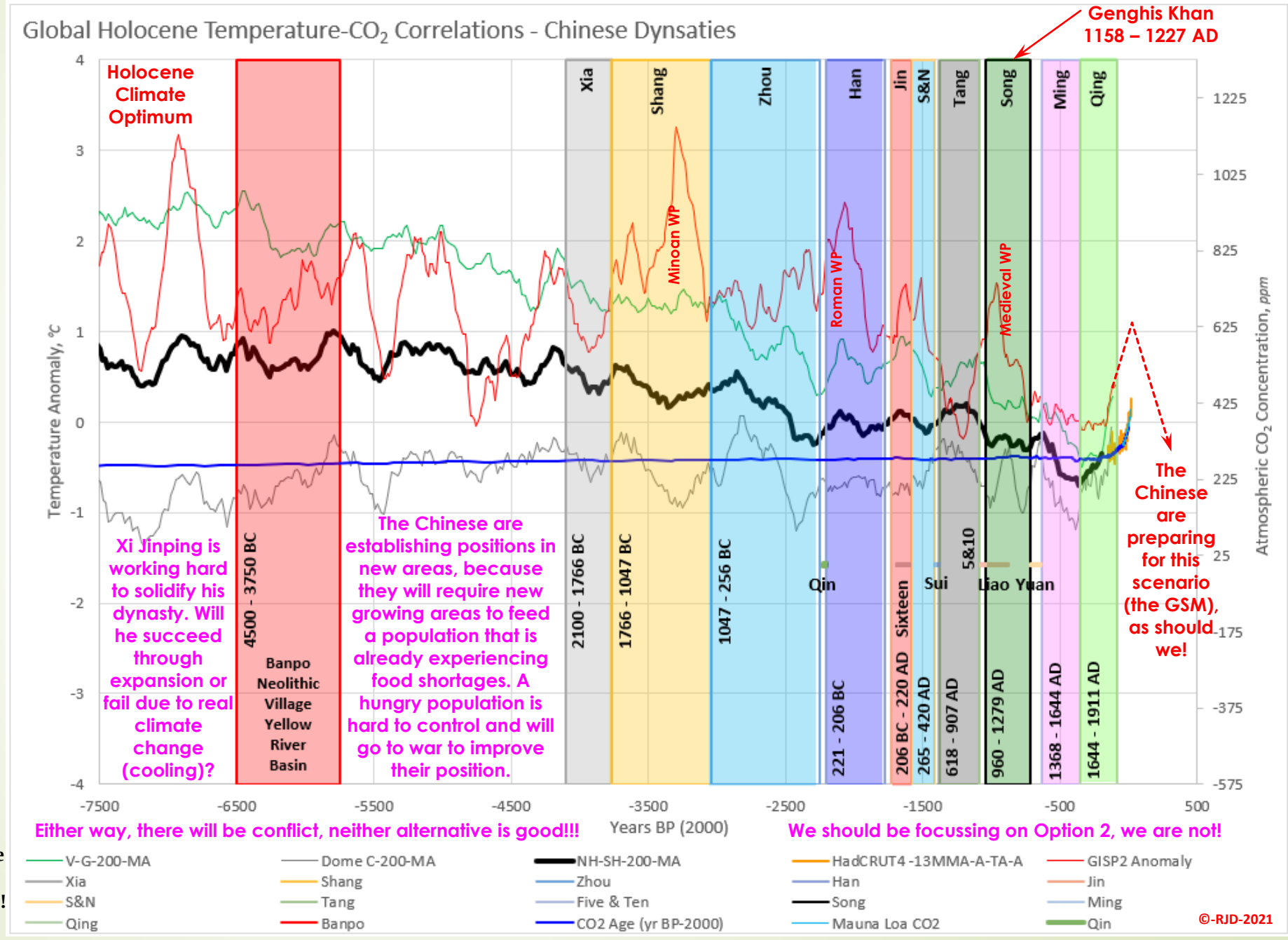
This slide expands the Late Holocene out by a couple thousand years to cover a bit of the Holocene Climate Optimum and allow a look at the full Chinese history. The Chinese have the longest, generally continuous large civilization on the planet and their history is interesting from a climate perspective. The Chinese people got their start at the tail end of the Holocene Climate Optimum. Early villages were established and thrived from 4500 – 3750 BC. The first Chinese Dynasty (Xia) began in 2100 BC. Dynasty changes were very in sync with the solar cycles visible in the Greenland ice cores. When solar activity dropped sharply, the planet would have cooled sharply (at least in the NH). The temperature drops would have caused problems in food production, leading to mass starvation and civil strife (a key driver in regime change). When the good times return, the minds of early leaders would return to expansion of their territories (blessed with healthy, strong armies) and again the conditions are ripe for dynasty changes. Generally, empires/dynasties were built during the warmer periods. I am sure Genghis Khan, gave the Chinese as few things to think about during the Medieval Warm Period.

Ideal Temperature? China

As per the last slide, the Minoans, Romans, Vikings, etc. built their empires/colonies during the warm periods. The Chinese are very aware of what the solar cycles mean and their policies are geared towards them. There is a very good reason that they are developing North Africa, building their Silk Road initiatives and ignoring these stupid "Climate Change" initiatives. They know better!

The sun, (not CO_2) is the primary climate driver!



What Is The Ideal Global Temperature (Holocene)?

All this empirical data is available on my website (with links).
climatechangeandmusic.com

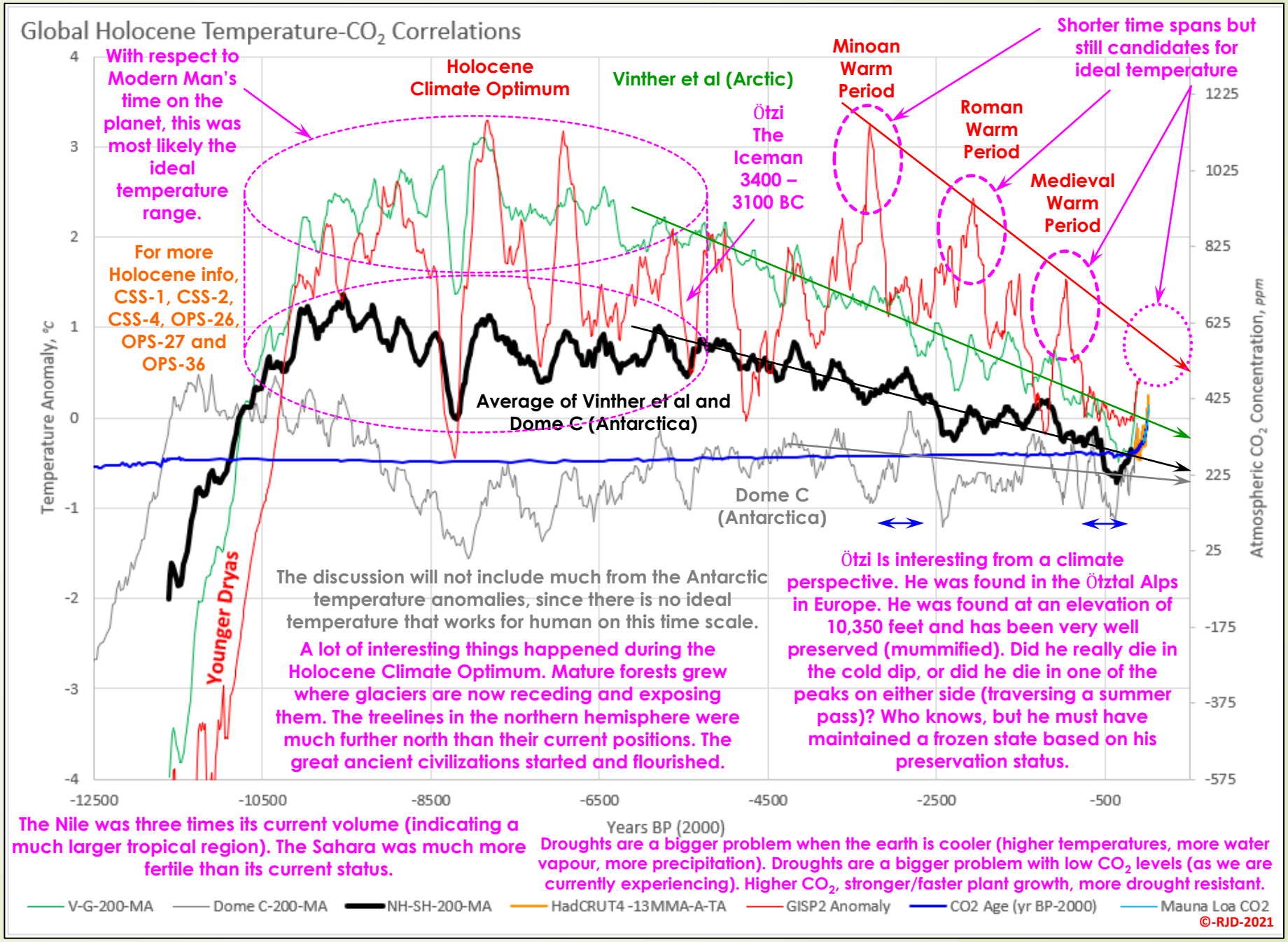
GSM – Grand Solar Minimum. You really should do the Research!

This slide finishes off the Holocene discussion. There is a simple reason for the designation Holocene Climate Optimum. Modern human life was established during this period and flourished. During this period, mankind needed the warmer temperatures to populate new areas and survive. They did not have the technology and resources available to our modern society. Air conditioning and our transportation options allow us to live and thrive in desert areas too hot for human habitation. The same goes for the cooler areas of the planet. There is a reason that 90% of Canada's population lives within a 100 miles of the US/Canada border. It gets cold up here! But our modern technologies (and access to abundant, reliable, cheap energy) does allow us to live comfortably much further north. Renewables will not be feasible throughout most of Canada and many of the other northern countries around the world. "Global Warming" would benefit both Canada and the rest of the world. Northern agricultural areas would have longer growing seasons and the productive land areas could be increased significantly. The alternative, the GSM cooling will be devastating (cold is a much efficient killer than heat)!

Ideal Temperature? Holocene

I am pretty sure we can survive through warm periods like the Holocene Climate Optimum. Our ancestors had no trouble or we would not be here. If they could survive, I think we can. After all, despite the "Hottest Years Ever", we are still hanging in there. Oh wait, the earth was significantly warmer through most of the Holocene. How are these the "Hottest Years Ever"? Just wondering!

The sun, (not CO_2) is the primary climate driver!



GSM – Grand Solar Minimum. You really should do the Research!

CSS-9e What Is The Ideal Global Temperature (Ice Core Data)?

All this empirical data is available on my website (with links).
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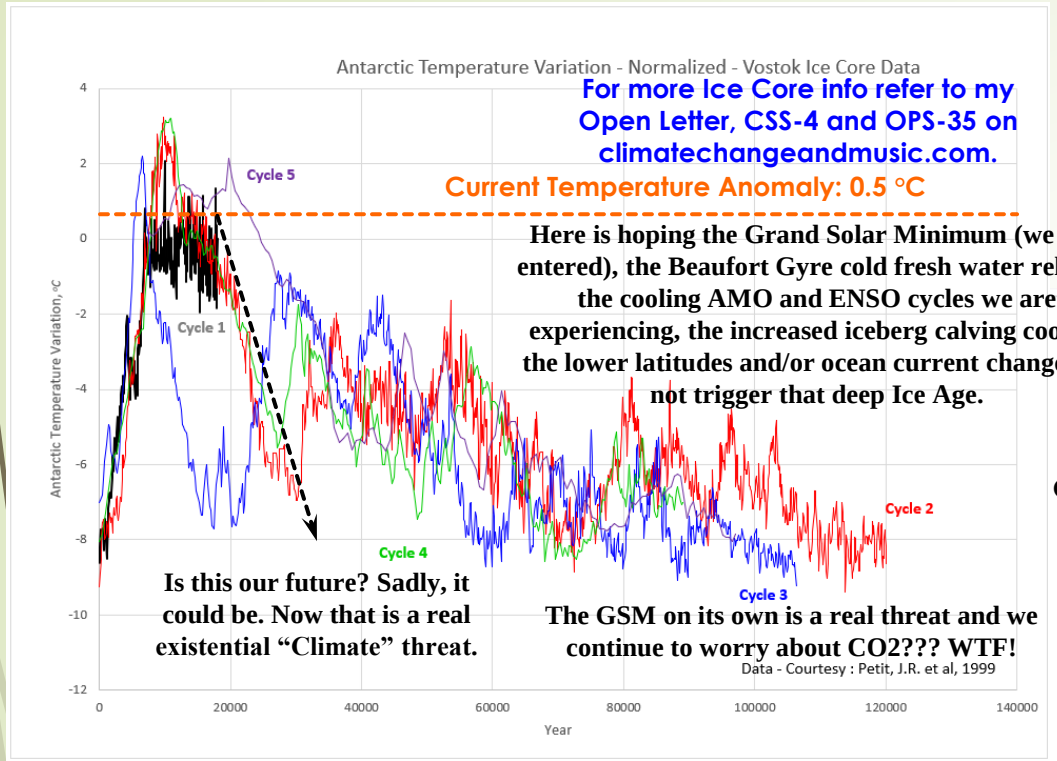


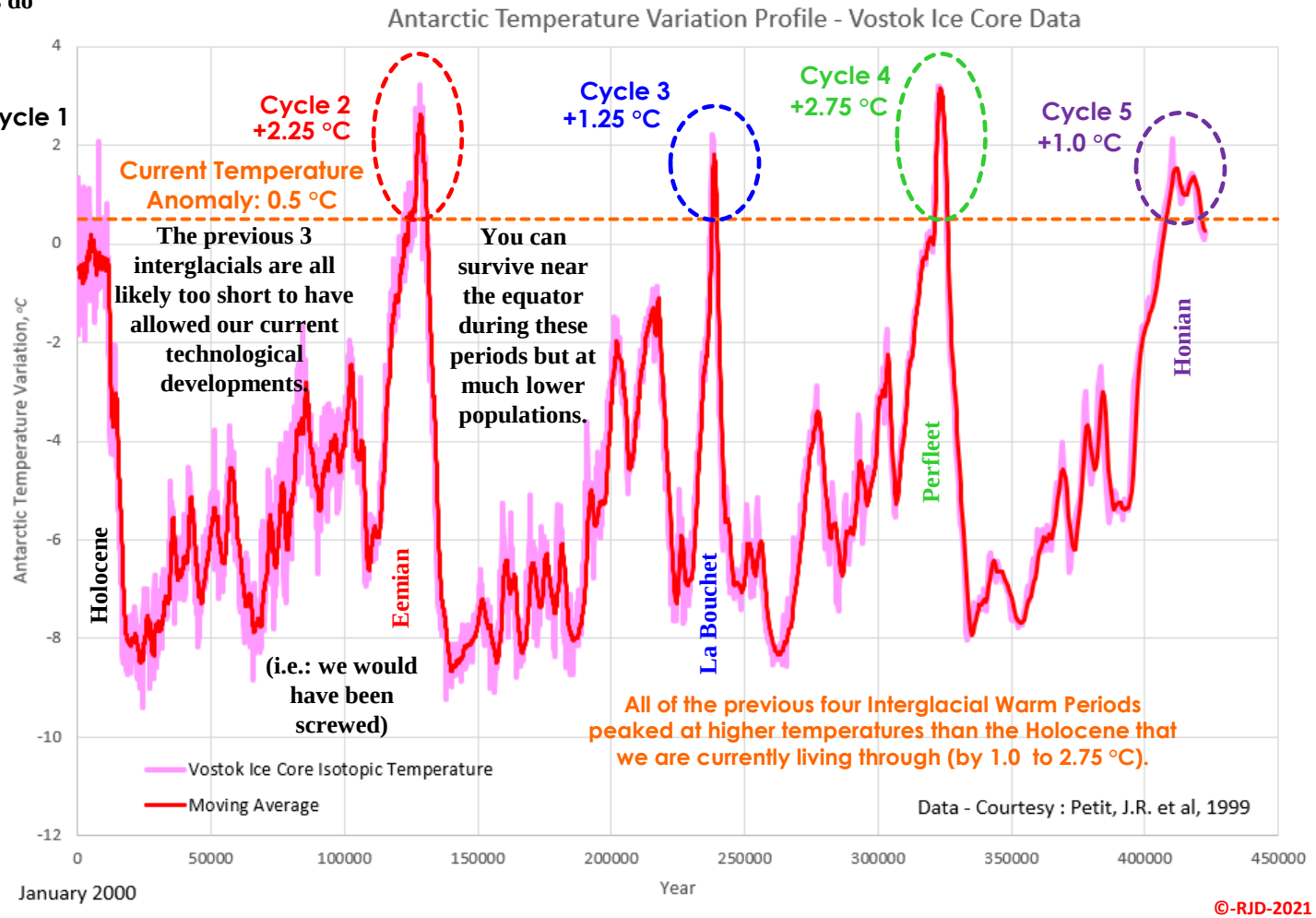
Here is hoping the Grand Solar Minimum (we just entered), the Beaufort Gyre cold fresh water release, the cooling AMO and ENSO cycles we are experiencing, the increased iceberg calving cooling the lower latitudes and/or ocean current changes do not trigger that deep Ice Age.

Is this our future? Sadly, it could be. Now that is a real existential "Climate" threat.

The GSM on its own is a real threat and we continue to worry about CO2??? WTF!

A little harder to establish the ideal temperature at this time scale. But I suspect a degree or two would only benefit humanity. Again we survive and thrive during periods of warmth. Any one of those warm interglacials would work out just fine for the human species and any other species that existed at the time. Where we and any other species would have a problem is in the deep ice ages that actually dominant this period. The Pleistocene Ice Age began about 2.58 million years ago and despite the warmth of the Holocene Interglacial we are living through, we are still in that ice age.

Looks like the first couple of decades of the 21st century are not the "Hottest Years Ever" as evangelized by the CAGW alarmists. But are even these previous interglacials candidates for the Hottest Period? No!



Ideal Temperature? Ice Cores

The data plotted above is the same data as shown to the left. The data has been normalized to the lowest temperature of the deep ice age just preceding the temperature rise into each interglacial. Unfortunately for us, the interglacials are relatively short (averaging around 14,000 years). We (Cycle 1) are currently at roughly 15,500 years. So you could say we are overdue for our drop into the great ice abyss. That will happen (despite rising CO_2) but the range could be decades to thousands of years from now. I am hoping for thousands of years. The general cycle over the recent Pleistocene is 100,000 years long with 90% of that in deep ice ages. The cycles through most of the Holocene were 42,000 years long. As for the ideal temperature, I would suggest that the Holocene might be the most appropriate. Not based on magnitude but the relatively flat temperature profile. The other interglacials would be preferable if they were longer duration (too short for meaningful technology growth).

The sun, (not CO_2) is the primary climate driver!

CSS-9f What Is The Ideal Global Temperature (Longer Term)?

All this empirical data is available on my website (with links).
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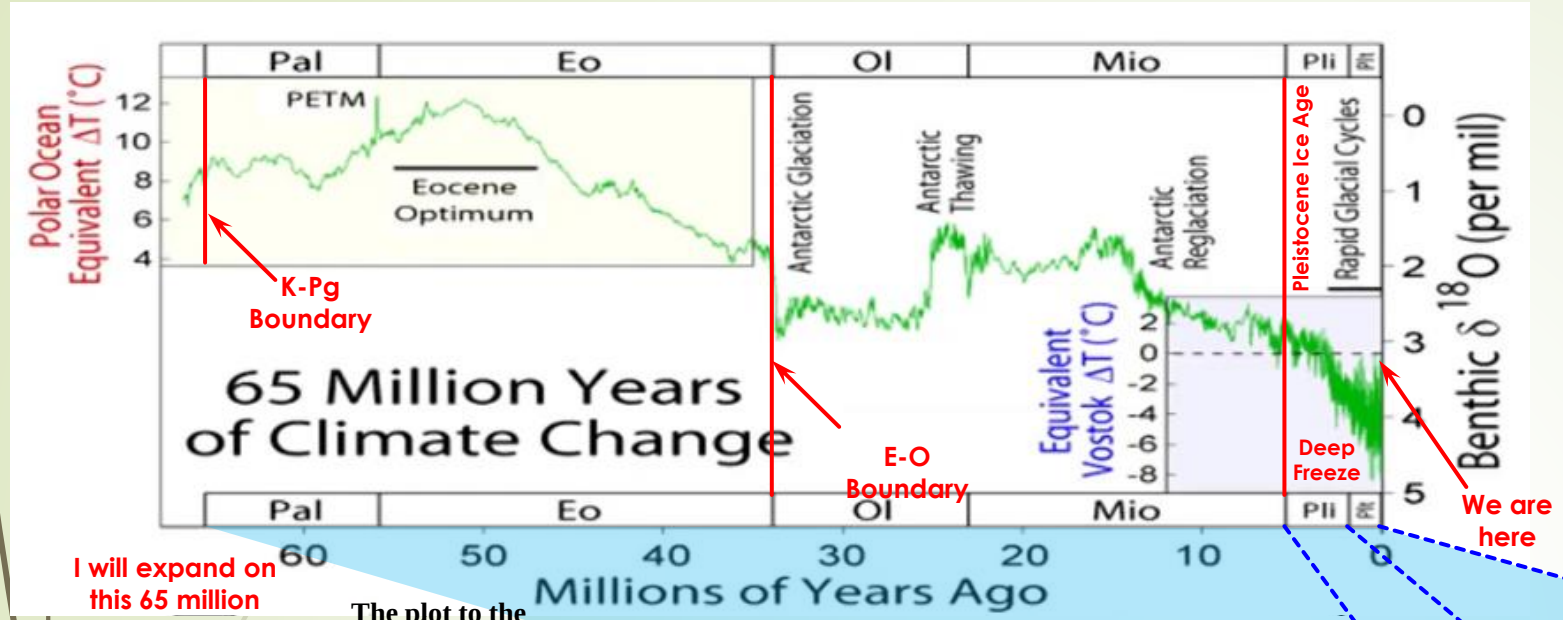


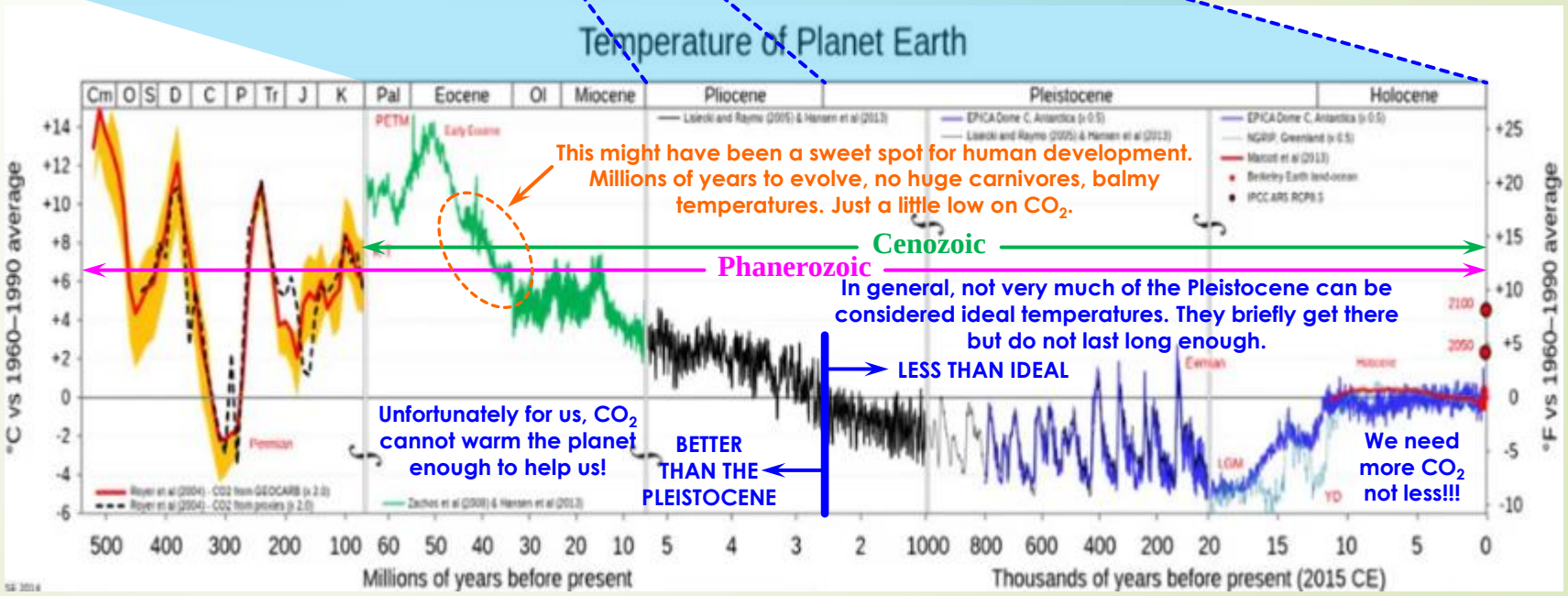
I will expand on this 65 million year period (including CO_2) in a near future OPS.

Expanding the time scale out further shows (to the left) just how low the temperatures we are currently experiencing really are. For those that still believe we are living through the Hottest Years Ever, you might want to consider some medical help. The Eocene Optimum (peaking around 50 million years ago) had global temperatures that were at least 12 °C higher than our current global temperatures. The Eocene Period lasted from 56 – 33.9 million years ago. During that period, Antarctica was essentially ice free. That changed abruptly when a couple of large bolides (meteors) likely slammed into Siberia and Chesapeake Bay. You could argue that the Eocene might reflect the ideal temperature. With little to no ice on Antarctica, an entire continent was available for habitation, agricultural opportunities, etc. and you would not have to worry about those pesky deep ice ages that show up every 10,000 to 12,000 years in our history (and future). Life continued through this period despite the mass extinctions on either side of the Eocene.

Ideal Temperature? Long Term

The plot to the right shows the earth's entire Phanerozoic temperature history. Life has been abundant throughout this period. That does not change as we move further into the past. The temperatures preceding the Eocene fluctuated significantly but were generally much higher than our current "Hottest Years Ever". Climate wise, I think we could have survived quite nicely through the dinosaur age (the Triassic, Jurassic and Cretaceous Periods). Could be some additional problems related to the size of the wildlife but in general there was obviously plenty of food to go around. The downside we would have been part of that food supply. The Carboniferous and Permian are the source of many of the major coal (stored solar energy) deposits. Lots of vegetation (courtesy high CO_2 levels), should be livable!

The sun, (not CO_2) is the primary climate driver!



What Is The Ideal Global Temperature (Wrap Up)?

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GSM – Grand Solar Minimum. You really should do the Research!

In reality, there is no "ideal" temperature. When you look at all of the data, it becomes very clear that we are not currently living in an ideal climactic period. Life thrived (at levels much higher than today) at much higher temperatures than we or our descendants will ever see. The temperature cycles of the Pleistocene are devastating for life (all life) on this planet. A 10,000 to 20,000 year interglacial warm period is a very short period of time to develop the technologies and methods needed to survive a deep ice age. And the human race will survive but there will be massive population declines as we are forced ever closer to the equator and our food production options (arable land) become greatly reduced. And let us not forget, the interglacial warm periods are also subject to their own temperature and societal up and down fluctuations as we are about to experience for ourselves. This GSM will have devastating outcomes just like every other major GSM over the Holocene. Barring cosmic (and other major terrestrial global) disasters, the ideal living conditions (based solely on climate) would likely apply to just about any period pre-Pleistocene that were not experiencing a deep ice age. The planet has experienced deep ice ages (like ours) every 150 million years. The last one (150 million years ago) did not reach the same depths and would most likely have been very comfortable to live through. Luckily, these deep ice ages (from a geological time perspective) represent only ±10% of the earth's Phanerozoic period. Throw in CO2 levels of 1,000 ppm and you can narrow down the periods of time which would have had the ideal climate conditions.

Ideal Temperature? Wrap Up

The sun, (not CO_2) is the primary climate driver!

Unfortunately, we have no choice. We have evolved physically through the entire Pleistocene (2.58 million years) and have experienced exponential technological evolution over the Holocene. We are going to need every bit of that technology and whatever improvements we can muster over the next few decades. We are wasting time, money and human lives on CAGW alarmism when there are real existential threats to human prosperity on the near horizon. The GSM is the immediate threat, but there are other potential problems (such as a potential solar micro-nova in a few decades) that need more research and attention (suspicious0bservers.org).

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OPS-41, for more info/discussion go to climatechangeandmusic.com.

Great visualization of geological time scale.

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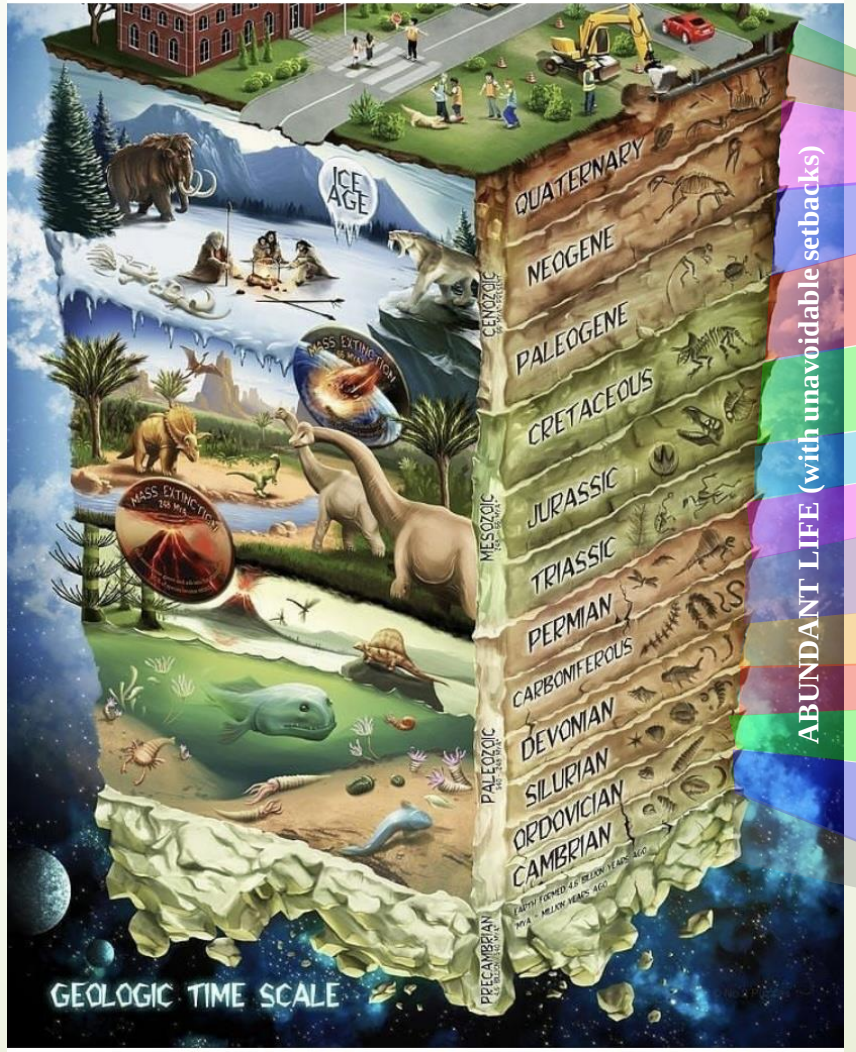

One more dig at the "Hottest Years Ever"! Over the Phanerozoic (earth's period of abundant life), global temperatures have been higher than current temperatures ±90% of the time (significantly higher for most of it).

Current Temperature ±15 °C

And those temperatures obviously have very little to do with CO_2 Could it be the sun?